

APG200 HIGH PERFORMANCE COMPACT PIRANI GAUGE

edwardsvacuum.com

Edwards new APG200 series high performance compact Pirani Gauge is the perfect vacuum measurement solution across a spectrum of applications due to its compact size, LED light ring, integrated set points and flexibility of connections/outputs.

Edwards production facility in the UK has been making and designing vacuum gauging for decades. With this experience we have been able to develop a gauge that has a 25% reduced package size, with no loss in performance. And by owning not only the measuring technology, but also the electronic development and manufacture we have been able to maximise the features we can offer.

With a range of upgrades and feature enhancements, the APG200 is suitable for all vacuum markets, from Analytical instruments who can take advantage of the reduced size and flexible outputs, to Semiconductor for whom the new interfaces and light rings enable better maintenance of systems, to Research and development for whom the local pressure indication helps to monitor experiments away from the main interfaces.



Benefits

- 1** Features required around vacuum measurement have increased over the past decade. With requirements for set-points, digital interfaces and visual aids increasing our new product meets all these needs and pushes them further than ever before in such a compact package.
- 2** Every one wants a reliable vacuum process that works day in, day out, whether being used 24/7 or sporadically. Our pirani gauge measuring cell builds upon the long track record in pirani gauging to give great performance across its lifetime.
- 3** With standardisation increasingly common, having parts that can be changed or upgraded with no impact is important. That is why our digital versions of the gauges are in the same footprint as the analogue, allowing for easy upgrades.
- 4** Part of a gauges lifetime is its end of life. To ensure that you have minimum downtime and cost of ownership we have a simple model for replacement electronics and measuring cells so that when change is needed, it is easily manageable.

Applications

Analytical instruments

Often pushing the boundaries of what is possible with vacuum, making sure that the process is fully optimised and repeatable is key for the ongoing strive for excellence.

Semiconductor

Famed for their harsh duties, ensuring that your Fab is running 24/7 even in these conditions is vital. Therefore strict monitoring of all parts can ensure maximum uptime.

Medical

All kinds of medical and medical related processes rely on differing levels of vacuum at different process steps. Accurately and reliably measuring these steps is important to ensure a consistent output.

Features

1 Light ring pressure indication

With our new light ring, seeing what pressure your system is at, away from the central interface is now possible

2 Compact size

A 25% reduction in volume compared to the APG100, without any loss in performance

3 Long filament

With our design we have been able to maximise the length of the filament, giving increased sensitivity and therefore responsiveness at the top and bottom of the range

4 Integrated filter

The integrated filter enables you to truly fit and forget as the filter rejects particles that would otherwise damage the measuring cell

5 Wide range power supply

Our 15-48V power input is the widest available on the market, enabling you to run these gauges on whatever power

6 Drop in compatible

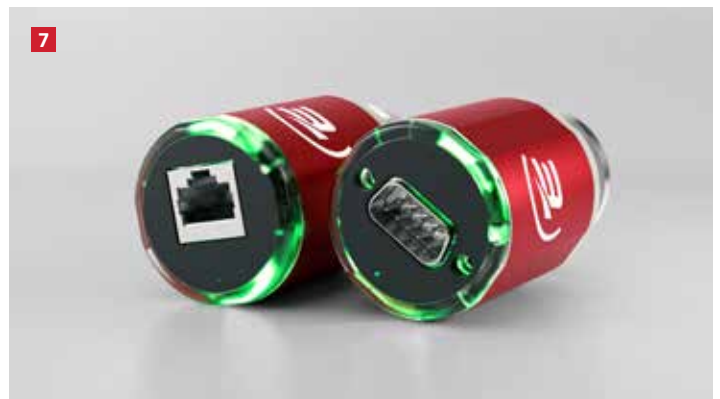
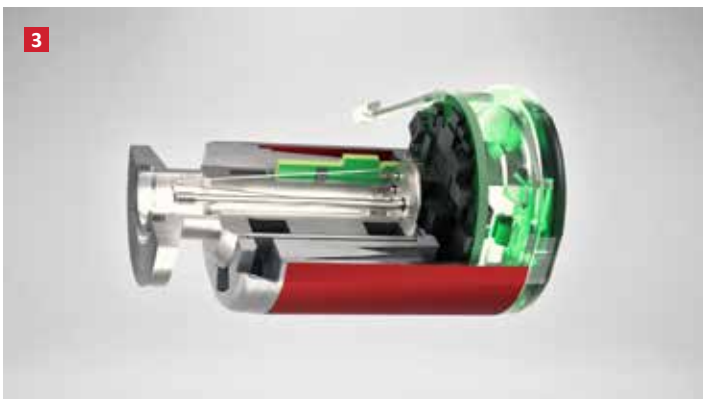
We know the last thing you want to do is change software or carry out lengthy qualification. Therefore we have made sure that we provide variants to cover the most commonly used outputs so upgrading is even easier

7 Digital / Analogue

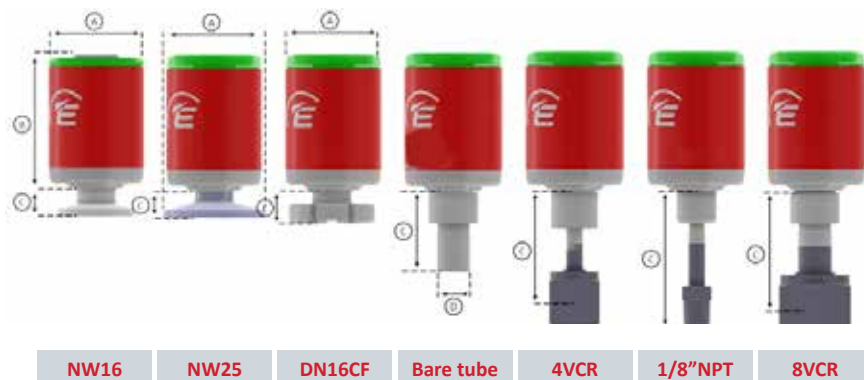
Our digital gauges sit in the same footprint as our analogue gauges, making it easy for you to upgrade at a later date should more data-collection/control be needed

8 Set point relay

For the first time on an Edwards gauge we have dedicated set point relays available, enabling you to trigger a wide range of knock on actions



DIMENSIONS



| Characteristic | Dimension (mm) | | | |
|-----------------------------|----------------|----|----|------|
| | A | B | C | D |
| Filament/ Pressure range | | | | |
| NW16 | 37 | 52 | 11 | |
| NW25 | 40 | 52 | 11 | |
| DN16CF | 37 | 52 | 13 | |
| Bare Tube | 37 | 52 | 30 | 12.7 |
| 4VCR | 37 | 52 | 38 | |
| 1/8" NPT | 37 | 52 | 51 | |
| 8VCR | 37 | 52 | 39 | |

TECHNICAL SPECIFICATIONS

| | APG200 M series | APG200 LC series | APG200 MP series |
|---------------------------------------|--|---|--|
| Measurement range | Atmosphere to 5×10^{-4} mbar (Atmosphere to 3.75×10^{-4} torr) | Atmosphere to 1×10^{-4} mbar (Atmosphere to 7.5×10^{-5} torr) | Atmosphere to 5×10^{-4} mbar (Atmosphere to 3.75×10^{-4} torr) |
| Accuracy | Atmosphere to 100 mbar +50% 100 mbar to 1×10^{-3} mbar +15% 1×10^{-3} mbar to 5×10^{-4} mbar +50% | 100 to 10 mbar +50% 10 mbar to 1×10^{-3} mbar +15% 1×10^{-3} mbar to 5×10^{-4} mbar +50% | Atmosphere to 100 mbar +50% 100 mbar to 1×10^{-3} mbar +15% 1×10^{-3} mbar to 5×10^{-4} mbar +50% |
| Repeatability | 2% of reading between 100 and 1×10^{-3} mbar | 2% of reading between 10 and 1×10^{-3} mbar | 2% of reading between 100 and 1×10^{-3} mbar |
| Supply voltage | 15 to 48 V d.c. | | |
| Electrical connection | RJ45/ 9 Pin D-sub | | |
| Analogue output (D1G***1***) | 0-10V | | |
| Serial output (D1G***5***/D1G***0***) | RS232 or RS485 | | |
| Set point | 0, 1, or 2 depending on model | | |
| Range | 1.8-9.2 V | | |
| Relay contact rating | 48 V dc max, 500mA | | |
| Status indicators | 360 Bright LED ring | | |
| Max cable length | 100 m | | |
| Over pressure limit | 10 Bar | | |
| Operating temperature range | 5 to 60 °C | | |
| Storage temperature | - 30 to 70 °C | | |
| Max bake out (electronics removed) | 150 °C | | |
| Max relative humidity | 80% RH up to 31 °C decreasing linearly to 50% RH at 40 °C and above | | |
| Materials exposed to vacuum | Tungsten/Rhenium, Stainless steel 316L and 304L, Glass, Ni, NiFe, Stainless steel 302S26 | Platinum/Iridium, Stainless steel 316L and 304L, Glass, Ni, NiFe, Stainless steel 302S26, PTFE | Platinum/Rhodium, Stainless steel 316L and 304L, Glass, Ni, NiFe, Stainless steel 302S26 |
| Dead volume | 3.3 CM ³ | | |
| Weight (16ISO-FK) | 130 grams | | |
| Protection class | 40 | | |
| Certifications | CE, UKCA | | |
| Compatible controllers | TIC/ADC/TAG | | |
| Customer interfaces | Single push button control | | |
| Backwards compatibility | Yes | | |
| Protection | Integrated filter | | |
| Size (NW16) | 63x37x37 across the flats | | |
| Software | Labview drivers | | |
| Output matching | Yes | | |
| Flange | NW16/25, DV16CF, 1/8" NPT, 4VCR, 8VCR, Bare tube | | |
| Service | Replaceable tube and electronics | | |

PART NUMBER MATRIX

| D1G | * | * | * | * | * | * | * |
|-----|---|---------------------------------|---------------|--------------------------|-----------------|----------------------------------|----------------|
| | 1= Standard (M) | 0 = No set point ^[2] | 1 = NW16 | 1 = 0-10V | 1 = RJ45 | 0 = Standard Linear | 0 = standard |
| | 2 = Corrosion resistant (LC) | 1 = 1 Set point ^[3] | 2 = NW25 | 5 = RS232 ^[5] | 2 = 9 Pin D-Sub | 5 = S matched ^[6] | C = Calibrated |
| | 3 = Corrosion resistant (MP) ^[1] | 2 = 2 set points ^[4] | 5 = 1/8 | 0 = RS485 ^[5] | | 2 = 1.9 to 10.0 V ^[7] | |
| | | | 6 = 4VCR | | | 3 = 2.2 to 8.5V ^[7] | |
| | | | 7 = 8VCR | | | 4 = 1.0 to 9V ^[7] | |
| | | | 8 = Bare tube | | | | |
| | | | 9 = DN16CF | | | | |

| Edwards - Tube | | | | | | | |
|----------------|--|-----------|--------------|-------|-----------|--------|--------|
| ZD1G | Filament | Set point | Flange | Comms | Connector | Output | Output |
| | X | A | X | A | A | A | A |
| | 1= Standard (M) | | 1= NW16 | | | | |
| | 2= Corrosion resistant (LC) | | 2= NW25 | | | | |
| | 3= Corrosion resistant (MP) ^[1] | | 5= 1/8 | | | | |
| | | | 6= 4VCR | | | | |
| | | | 7= 8VCR | | | | |
| | | | 8= Bare tube | | | | |
| | | | 9= DN16CF | | | | |

| Edwards - Electronic | | | | | | | |
|----------------------|---|---------------------------------|--------|--------------------------|-----------------|----------------------------------|--------|
| ZD1G | Filament | Set point | Flange | Comms | Connector | Output | Output |
| | X | X | A | X | X | X | X |
| | 1 = Standard (M) | 0 = No set point ^[2] | | 1 = 0-10V | 1 = RJ45 | 0 = Standard Linear | |
| | 2 = Corrosion resistant (LC) | 1 = 1 Set point ^[3] | | 5 = RS232 ^[5] | 2 = 9 Pin D-Sub | 5 = S matched ^[6] | |
| | 3 = Corrosion resistant (MP) ^[1] | 2 = 2 set points ^[4] | | 0 = RS485 ^[5] | | 2 = 1.9 to 10.0 V ^[7] | |
| | | | | | | 3 = 2.2 to 8.5V ^[7] | |
| | | | | | | 4 = 1.0 to 9V ^[7] | |

^[1] RS232/485 versions of this gauge are only available with set point

^[2] (select for backwards compatible - Remcal /transistor output)

^[3] only with RS232/485

^[4] only with analogue 0-10V

^[5] only available with 9 pin D-Sub

^[6] only available with "0" Set point

^[7] only available with "0" 0-10V output

FREQUENTLY USED PART NUMBERS

| Product description | Order no: |
|---------------------|------------|
| APG200-XM-NW16 | D1G1011100 |
| APG200-XM-NW25 | D1G1021100 |
| APG200-XLC-NW16 | D1G2011100 |
| APG200-XLC-NW25 | D1G2021100 |

| Product description | Order no: |
|-----------------------------------|------------|
| nAPG200-XM-RS485-NW16-9 Pin DSUB | D1G1010200 |
| nAPG200-XM-RS232-NW16-9 Pin DSU | D1G1015200 |
| nAPG200-XLC-RS485-NW16-9 Pin DSUB | D1G2010200 |
| nAPG200-XLC-RS232-NW16-9 Pin DSUB | D1G2015200 |

GLOBAL CONTACTS

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